WATER GAS AND COAL GAS

HEARING BEFORE HOUSE COMMITTEE.

House of Representatives, Hon. Edward L. Taylor, jr., presiding. Hon. Edward L. Taylor, jr., presiding.

Statement of Forrest E. Barker, of Mr. Barker-That was the implication

will interrupt you, if necessary, to ask marks.

Barker-Perhaps the committee would be interested in a brief historical statement with respect to the consideration of this question in Massachusetts, remarks? where, perhaps, more work has been

setts has been cited a number of times as a portion of your remarks.

by other witnesses, and we would like to Mr. Barker-I will do so. In the pur-

Mr. Barker (continuing)-Certainly more there were suggestions and recommenda- the legislature might think wise. livered in the State, but no recommenda- was that the provision about carbon tion with respect to carbon monoxide, monoxide was repealed. power and the amount of sulphur impurities and ammonia. I mention this because it is such a familiar fact that we Mr. Taylor-What year was that? have had a thorough investigation of the Mr. Barker-1890.

These recommendations were made by the inspector, and when the recommendations found form in legislation the cartion was slightly more conservative. The

cussion of the subject.

The 10 per cent provision in the law less of the board's recommendation, for The measure for the repeal of the Mr. Taylor-In short, the board formed after discussion, but it was bitterly con- anyway? ested in the senate, the two interests, Mr. Barker-Yes. the company in possession of the field | Mr. Sims-Net the board, but the legisbeing arrayed upon one side in favor of lature? law, and the people who desired to Mr. Barker-Yes, the board and the tigating the price of gas.

for 10 per cent monoxide?

subject was taken up by the State board monoxide in the gas acts as a poison? were conducted, which, I see from the the two gases, printed report, have been referred to in Mr. Sims-Give them in detail and very prior sessions of this committee. In 1885 particularly, and it was that year that the present board of gas commissioners was entropy of carbon monoxide limitation and the question of carbon monoxide limitation and the question of competition went hand in hand in the contest and in the discussions.

Mr. Barker—And I hope to make myself the manufacture of water gas over the clear to the committee.

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Mr. Sims—From 22 up?

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Mr. Sims—From 22 up?

Mr. Love—Yes. Of course, when the pure and powerful illuminating agent for the country than it otherwise is at present supplied, although it is the case, but our gas is sold to us per the monocare of the committee.

Mr. Barker—And I hope to make myself the manufacture of water gas over the coll gas in that respect.

Mr. Barker—There is a conviction that the context of the committee.

Mr. Sims—You know, when an expert is giving testimony to a nonexpert, it is a greater draft upon the use of the committee.

Mr. Sims—From 22 up?

Mr. Love—Yes. Of course, when the thing is determined by weight, the reverse than the economies of two separate proposition went hand in the context and in the discussions.

Mr. Barker—There is a material gain in the clear to the committee.

Mr. Sims—From 22 up?

Mr. Love—Yes. Of course, when the difficult to make it clear. In other wise words, we do not understand it, and continue of the committee.

Mr. Sims—From 22 up?

Mr. Love—Yes. Of course, when the clear in the clear in the country is a material gain in the discourse of the committee.

Mr. Barker—And I hope to make myself the clear in other was a material gain in the clear in the clear in other was a material gain in the clear in the country is a material gain in the clear in

compulsory supply powers. It has juris- costly than to manufacture the two towhere the public and the company come a popular method, and is such because in contact, and has, directly or indirectly, of the economies incident to it. to deal with most of the problems that to deal with most of the problems that are presented to the gas manager. I Massachusetts or Boston case, I infer burden from that reserve a say the board has to do with the quality; from what you say it was urged on the character of coal with the manufacture.

it has to do with seeing that the quality part of those advocating the manufacture the statute is complied with, and it also has instructions under the cheaper to make water gas, or a comstatute to make recommendations to the bination, than to make a coal gas are an argument in numerous if coal gas had been used.

Mr. Sims—And makes an argument in numerous if coal gas had been used.

The proposition of the use of water gas, if it can be provided by the proposition of the use of the use of the use of water gas, if it can be provided by the statute is complied with, of water gas that in Boston it would be favor of the use of water gas, if it can be provided by the statute is complied with. statute to make recommendations to the bination, than to make a coal gas ex- be done safely? legislature as to its quality when, in its clusively? judgment, such recommendations ought

As I started to say, it happened that ter was before the legislature? between the sessions of 1884 and 1885, the Mr. Barker-Yes. the city of Boston from the local authori- the new interests which had come into mission, or with the proposition for legis- and when the contest between the two ing water gas? lation to that effect, the contest over the interests ceased the public interest praccarbon monoxide provision somewhat dim- I tically ceased in the matter. inished. I mention this fact of the crea- Mr. Sims-Due to agitation of compet- from all points. With the same fixtures Mr. Sims-We are eliminating that. in a statement in the proceedings in much interest as they did? monoxide present had something to do Mr. Barker-That was the theory upon way of safeguarding against accidents ness is simply differentiating between that?

Mr. Mr. Barker-That was the theory upon and ill health, to use the gas part water suicide and accident. monoxide present had something to do The fact is that the gas commission because new interests bought out the old. coal gas exclusively? was created in 1885 instead of 1888, and Mr. Sims-You spoke of the water gas Mr. Barker-I think any person familiar with the facts who people wanting to get into Boston. Upon much the same results either way-

Committee on the District of Columbia, | should hear the statement that the people The committee met at 10 o'clock a. m., certainly smile if he did not do no more.

Mr. Taylor-I might say that Massachu- rapher we will be glad to have it printed

suit of this inquiry the board, through one or more of its members, examined than any place in the United States. We all of the cases of death from illuminatformerly had a statute there limiting the ing gas of which they could learn in amount of carbon monoxide in illuminating gas to 10 per cent of the volume of self took part in that investigation and This act was passed in 1890. It may visited all the places mentioned in the be of interest to know that it was not report, and some of the time I had one passed upon the recommendation in the other member of the board, and somereport of any public officer, either board times another member of the board with of health, or any person in authority to me. The result was that in 1890 we recomsupervise or inspect gas. We have had a mended the passage of the law which gas inspector in Massachusetts since, I would enable us to grant licenses specify-think, 1860, and in the report of the incumbent of that office in the year 1880, might be put into gas, and that license and for two or three years previously, to be for a definite time or revocable, as tions with respect to legislation defining result of that proposition, or perhaps the purity and quality of gas to be determined that in combination with other things.

> endations related to candle Mr. Taylor-That is, the 10 per cent pro-Mr. Barker-Yes, sir.

Mr. Taylor-Can you give us the re vestigation, and the general assumption, for that? You say it was the result of I suppose, would be that that investigation took place before the legislature, but it took place afterward.

certain reasons. Why did you reach that conclusion? Why did the legislature and the board and the public accept that as a

bonic oxide provision had been added. It board asked permission to issue special is a significant fact that at that time water gas promotion was common, or had amount of carbon monoxide to be allowed been common in the larger cities of the might be fixed and to make those licenses country, and the ewils of competition had revocable, but the legislature went fur-not been as well understood then as they ther and entirely repealed the law. The have since come to be, and the water gas proposition of the board found very little had won its way as a competing gas, and I mention this as significant because the vote against it being about three to one, contests with respect to water gas, so-called, and coal gas have always been prominent, and the competitive features have always been prominent in any dislebate in the legislature

fore only coal gas had been supplied, and as part of that attempt came the effort to secure a repeal of this law. That was monoxide were no more numerous than to secure a repeal of this law. That was monoxide were no more numerous than the length of exposure to produce fatal or dangerous results is less in water gas, or mixed gas, than it would be in 1884. I happened to be a member of those from gas with a larger percentage that the manufacture of gas as it is In 1884. I happened to be a member of those from gas with a larger personage that the house of representatives that year, and so the recollection of the event is ditions, and that was one reason. That is to say, as people are generally exposed which was a joint committee, as our to this gas, if exposed at all, they are to this gas, if exposed at all, they are constant to the straight coal gas? legislative committees mostly are, favored exposed sufficiently long to be as likely the repeal of the law; that is to say, the to be found dead with one gas as with Mr. Taylor-Just a minute. What dif-

aw passed the house almost unanimously the opinion that the gas was deadly stand, this investigation is as to

enter the field being arrayed upon the legislature too, I think. We called special other side in favor of its repeal. e legislature too, I think. We called special Mr. Murphy—That economic feature attention to that, that coal gas is itself might provide a reason why gas endanther side in favor of its repeal.

Attention to that, that coal gas is itself might provide a reason why gas endangerous gas, and that water gas is garing life is used, instead of a gas that who desired to enter the field were in also a dangerous gas, but we find a great would not endanger life, because it may ture upon the subject, and I am not in the literature of its repeal.

Attention to that, that coal gas is itself might provide a reason why gas endangerous. Of gering life is used, instead of a gas that turn upon the subject, and I am not in the literature upon the subject, and I am not in the literature upon the subject, and I am not in the literature upon the subject, and I am not in the literature upon the subject, and I am not in the literature upon the subject, and I am not in the literature upon the subject, and I am not in the literature upon the subject, and I am not in the literature upon the subject. who desired to enter the field were in also a dangerous gas, but we find a great would not e favor of the repeal of the law providing many cases where the exposure seemed be cheaper. to be very similar in one case as in the Barker-Yes, sir; they desired to other, and people are resuscitated, and into it if you want to. the 10 per cent provision. The contest different way. The water gas works ought to be no illuminating gas distributed an absolutely correct answer to the question, and yet miss a great deal that the that it gave rise to one of the few effect upon the blood, while coal gas thing under certain conditions when the committee ought to know. scandals we have ever had in Massa- works partly through poisoning, and neglected or misused, except for its great Mr. Barker-I am not here particularly chusetts in our legislature, and I think largely, probably, through suffocation, convenience.

the provision was defeated by a single asphyxiation.

vote—the proposition to change the law. Mr. Taylor—You refer to water gas Following that legislative session, the working through poisoning; you mean the

and nature of the gas to be used?

Mr. Barker—Yes, sir. It has the regulation of the price, of the quality, and alone and exclusively might be more diction over the issues of all securities gether. That is, however, in a measure and general supervision over the com- a question of locality, and could not be panies with respect to all those matters laid down as an absolute rule, but it is have?

of water gas that in Boston it would be

Mr. Barker-At that time Mr. Sims-I mean at the time the mat-Then, again, there

received privileges in the streets of proposition at any time, and prior to 1890 on the coal? With the appointment of the com- Boston had bought out the old interests.

tion of the commission because I notice ing gas companies, they did not have as and fittings, the same carefulness, and Mr. Barker—The great bulk of them are continued?

make cheaper gas?

higher candle power.

with reference to the question we are investigating as completely as possible, and then ask questions and not interrupt him too much. If you have no statement, of course, any member of the committee might ask questions of you. If you have any statement to make along the line of the manufacture of water gas and its effect upon public health and its danger and memace to the public safety and so on, I wish you would make it, and we will interrupt of the board.

Companies, to license companies to make where the gas key instead of having stop-power and and are fatally and distribute water gas under certain ped when the passageway was closed, might be turned around unconsciously after putting the light out, allowing the gas to continue to escape; and then sometime to make along the line of the manufacture of water gas, and animals exposed to the water gas die in much less time and are fatally provious in much less time and are fatally and distribute water gas under certain might be turned around unconsciously after putting the light out, allowing the gas to continue to escape; and then sometimes gas stoves poorly fitted up by flexipher with the committee if they care to have them. They are very brief, and the fond trends around unconsciously after putting the light out, allowing the gas to continue to escape; and then sometimes gas stoves poorly fitted up by flexipher would have the population of the entire subject. In the passageway was closed, possioned in much less time and are fatally provious in the turned around unconsciously after putting the light out, allowing the gas to continue to escape; and then sometimes that its shown by the experiments in Massachusetts. It was in Massachusetts that those experiments were demonstrated, but the fact is that they are to make the gas to continue to escape; and then sometimes gas to continue

Mr. Sarker-Yes.

Mr. Sims-Why not print it with your remarks?

Mr. Taylor-You need not stop now. If throughout the State from the use of il
Mr. Barker-I do not mean to say that throughout the State from the use of il
Mr. Barker-I do not mean to say that throughout the State from the use of il
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Mr. Barker-I do not mean to say that throughout the State from the use of il
Mr. Barker-I do not mean to say that throughout the State from the use of il
Mr. Sims-We are assured here by gendone in respect to it than anywhere else you will pick out the portions you desire the world—

you will pick out the portions you desire the world—

you will pick out the portions you desire the world the world the world to put in and turn it over to the stenogram that the world the wo

them as we think need investigation.

tion if you were free to recommend? Mr. Barker-That is an impossible con- Electric Light Commission. dition, to my mind, and any answer to Mr. Sims—Are you a physician? it would be purely theoretical, because, Mr. Barker—No sir. you will pardon me, it does not seem to me to propose a practical or possible not know but what you were.

health, the possible prevention of acci-dents, which would it be wise to do, to dents, which would it be wise to do, to the exposures of the fatal cases are all use an exclusive coal gas or the gas the conclusion the exposures of the fatal cases are all bonic oxide, and leaving the hydrogen the president, and it was investigated by they do use. Mr. Barker-That question is involved death in either case.

The 10 per cent provision in the law less of the board's recommendation, for made the introduction of water gas impossible, and it was that fact which led any moment before you are the agitation for the repeal of the law. Does this report you are the agitation reached its height law. This agitation reached its height law. The agitation reached its height law. The board?

Involved in the greater, it seems to me, and I should have to answer it in the gas and exposure to mixed or water and I should have to answer it in the gas and exposure to the other gas?

Mr. Sims—Just a moment before you are same way, and I should have to say the same thing, because I would be extremely in bathrooms and small rooms, and the law of the board?

Mr. Sims—They have small gas heaters in bathrooms and small rooms, and the law of the petition of the repeal of the law of the repeal of the same way, and I should have to say the same way, and I should have to say the same thing, because I would be extremely in the repeal of the repeal law. This agitation reached its height in 1884. There had been an attempt of the board?

Mr. Barker—Yes, and the reasons for it. Mr. Barker—Yes, and the reasons for it. The people who investigated the question the city of Boston, where theretogas in the city of Boston, where theretogas in the city of Boston, where theretogas in the city of Boston, where theretogas is a practical matter, the coal gas or straight water gas could be that the length of exposure to produce

Mr. Sims-Well, your judgment is, then,

Mr. Barker-Yes. ference does it make on the question of economy of manufacture? As I underdanger of the use of carbon monoxide, regardless of its cost or its saving. Is that not the purpose of this investigation as you understand it? We are not inves-

would not endanger life, because it may

Mr. Taylor-I have no objection to going

Mr. Taylor-That refers to all forms of

illuminating gas?
Mr. Barker-I think so; yes, sir.

Mr. Sims-Now, let me ask you a ques- terest in the matter. of health, and it was then that the re-ports were made and the experiments were the economic questions as related to agitation going on in the country along cer in Massachusetts doing your duty, as the line of the conservation of resources? I understand it.

Mr. Sims-And is that kind of coal life and health.

Mr. Sims-So that the manufacture of as I stated before, we have been unable Mr. Barker-Yes, sir

people representing the water gas interests was very little public interest in the gas in certain places, reduce the drain gas exclusively?

Mr. Barker-Yes, sir, Mr. Sims-And also the process of mak- to govern that, is there? Is not that all

Mr. Barker-Yes, sir. Mr. Sims-We are trying to look at this cidal. the same carelessness, averaging the city suicidal.

what grounds? What argument did they Mr. Barker-Yes; and make it of a Mr. Sims-Therefore to the interest of

ARING BEFORE HOUSE COMMITTEE.

Mr. Barker—Yes. Since then—I think it was in 1897—we had a renewal of the agitation, and that was the only time when when a way had any apparent public interest promoting the water gas interests favored the creation of the commission would certainly smile if he did not do no more. Mr. Taylor—I do not think we are interested in that matter at all.

Mr. Barker—That is, I think, you will notice, a poor assumption, as the statement is made by the people who made the creation of the commission would certainly smile if he did not do no more. Mr. Taylor—I do not think we are interested in that matter at all.

Mr. Barker—That is, I think, you will notice, a poor assumption, as the statement is made by the people who made the creation of the commission would certainly smile if he did not do no more. Mr. Taylor—I do not think we are interested in that matter at all.

Mr. Barker—That was the implication in the report, and that is why I speak been a member of of it. the Board of Gas and Electric Light of the speakers for have been chalrman of that board since of the speakers for have been chalrman of that board since of the speakers for and the speakers for have been chalrman of that board since of the speakers for and the result of that was that there on the speakers for and the result of that was that there on the speakers for and the result of that was that there on the speakers for and the result of that was that there on the speakers for and the result of that was that there on the speakers for and the result of that was that there on the speakers for and the result of that was that there on the speakers for and the result of that was that there on the speakers for and the result of the speakers for an and the result of the speakers for an angle of the

occurs from the gas or electricity, we are there was a greater number of actual pany has no benefit from the manufacture poisonings from exposure to water gas of water gas. reported to us, and we investigate such of or mixed gas, than there are from exreported to us, and we investigate such of the man as we think need investigation.

The man as we think need investigation.

Mr. Sims—Have you finished your controlled with coal gas was suffocation rather than actual poisoning. Am I corplant so as to manufacture coal gas excusive statement?

Mr. Taylor—As I stated before, it is our custom to let any statement be made and not to interrupt any more than we can help until the conclusion of the state—the old coal gas companies, and part of this work, I have not the slightest doubt.

speak with knowledge. Which would you recommend for a city like Washington, and the other does not always, but affects candle power, a sat candle power, by suffocation, would not the chances for Mr. Murphy. gas of the same candle power and the recovery in exposure be greater where the

Mr. Sims-I did not remember; I did clusively coal gas?

the consumer is not affected financially, coal gas would kill in a certain number fuel, and if gas can be made that can be looking alone to the interest of public of hours, and that the water gas would used for heating purposes, cooking

in the other one simply as the lesser is time would it require to produce fatal re- probably used in this city now largely for involved in the greater, it seems to me, suits by the exposure to mixed or water and I should have to answer it in the gas and exposure to the other gas?

water gas, or mixed gas, than it would be houses? that as a general proposition? Mr. Sims-Now, admitting that it is ne-

cessarily so, your contention is that practically it is not so? Mr. Barker-That is my observation. Mr. Sims-To the extent of the cases

literature on the subject does not bear

you out, does it? Mr. Barker-The literature upon the subject is purely technical, and does not

Mr. Sims-You may not be, but from the ordinary water gas, so-called, is a mixture of steam and oil. Steam and oil that gas, they got the ordinary 16-candle conflict with it at all. what I have heard said to the committee make and distribute water gas in Boston, then we find that in ordinary cases, as Mr. Barker-Mr. Chairman, if it were you seem to be. I understand the great Mr. Sims-Which was prohibited under the exposures ordinarily are, very much he 10 per cent provision?

Mr. Barker-Mr. Chairman, if it were not for the extreme convenience of this method of illumination, it ought to be question an expert, and I know with Mr. Barker—It was impossible under case. The gases work, however, in a prohibited altogether in any shape. There what great facility the expert can give not be more dangerous, in a practical is concerned, it is probably about the same results occur in either kind of method of illumination, it ought to be question an expert, and I know with gas as fuel for cooking ranges, will it or concerned, it is probably about the not be more dangerous, in a practical is concerned, it is probably about the not be more dangerous, in a practical is concerned. The concerned is concerned in the same results occur in either kind of method of illumination, it ought to be question an expert, and I know with gas as fuel for cooking ranges, will it or in the concerned it is same. The concerned it is probably about the probably about the same results occur in either kind of method of illumination, it ought to be question an expert, and I know with gas as fuel for cooking ranges, will it or in the concerned in the same results occur in either kind of method of illumination, it ought to be question an expert, and I know with gas as fuel for cooking ranges, will it or in the concerned in

> as an expert. Mr. Sims-I know you are not inter-

> ested one way or the other.
>
> Mr. Barker-I have not any personal in-

Mr. Barker-And I hope to make myself had better do so.

the question of carbon monoxide limitation and that it can be discussions, and the creation of the gas commission was intended to provide a board which should pass upon the question of competition with coal gas, that should pass upon the question of carbon monoxide limitation and that it can be discussions, and that it can be discussions, and the creation of the gas commission with coal gas, because it is attended, the question of competition mentality, that is, of a higher candle power, and that it can be discussions, and that it can be discussions, and the composition with discussions, and that it can be discussions, and that it can be discussions, and the composition with discussions and the context and in the discussions, and the composition with discussions, and the composition with discussions and the context and in the discussions, and the composition with discussions, and that it can be discussions, and that it can be discussions, and that it can be discussions, and the composition with discussions, and the composition with discussions, and the composition with discussions, and the case, but our gas is sold to us per dincussions. The case, but our questions and the two compositions? should pass upon the question of com- is to say, in the form of a mixed supply. As you understand, for the man- health in using coal gas exclusively, I see the School of should pass upon the question of competing concerns, among the other things gas, coal and water, that illuminating gas is made practically now thing to do with determining the quality and nature of the gas to he used?

Solution of competing concerns, among the other things gas, coal and water, that illuminating gas is made practically now the country. There is an opinitation of competing coal gas exclusively, I see two gases are very closely equivalent in gas, coal and the carburetted water gas are the ufacture of coal gas there is only a particular grade of coal suitable, and that is form of a mixed gas, coal and the carburetted water gas are the ufacture of coal gas there is only a particular grade of coal suitable, and that is form of a mixed gas, coal and the carburetted water gas are the ufacture of coal gas there is only a particular grade of coal suitable, and that is form of a mixed gas, coal and the carburetted water gas are the ufacture of coal gas there is only a particular grade of coal suitable, and that is form of a mixed gas, coal and the carburetted water gas are the ufacture of coal gas there is only a particular grade of coal suitable, and that is form of a mixed gas, coal and the carburetted water gas are the ufacture of coal gas there is only a particular grade of coal suitable, and that is form of the manthat if the carburetted water gas are the ufacture of coal gas there is only a particular grade of coal suitable, and that is form of the manthat is the carburated water gas are the ufacture of coal gas there is only a particular grade of coal suitable, and that is form of the manthat is the carburated water gas are the ufacture of coal gas there is only a particular grade of coal gas there is only a particular grade of coal gas there is only a particular grade of coal gas there is only a particular grade of coal gas there is only a particular grade of coal gas there is only a particular grade of coal gas there is only a particular grade of coal gas there is only a particular grade of the expense of the gas with the results to gas.

more highly useful for other purposes than way toleasure not be it it is because Mr. Barker—Yes, sir—for steel purposes.

Mr. Barker—Our duty has called us to investigate has that the carbon monoxide to take. (Laughter.)

Mr. Barker—Our duty has called us to investigate has the proper sanitary measure to take. (Laughter.)

Mr. Barker—Our duty has called us to investigate has standpoint, and that investigation has been made with a full knowledge of the have?

Mr. Barker—Our duty has called us to investigate has it is passed limiting the carbon monoxide to take. (Laughter.)

The main point which I believe has been brought before this committee is the nature and effect of carbon monoxide to take. (Laughter.)

The main point which I believe has been brought before this committee is the nature of accident. What are the proper sanitary measure to take. (Laughter.)

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The main point which I believe has been brought before this committee is the matter of accident. What are the proper sanitary measure to take. (Laughter.)

The main point which I believe has been brought before this committee is the matter of accident. What are the proper sanitary measure to take. (Laughter.)

The main point which I believe has been brought before this committee is the and three danger. Which could only have sand consequences in the latter, as it can contain as much as its passed limiting the carbon monoxide to take. (Laughter.)

The main point which I believe has been brought Mr. Sims—In connection with the manufacture of as I stated before, we have been unable lower. As a single illustration—it has lower, As a single illustration—it has only carelessness, or ignorance, or design, without hesitation for lighting our houses, massachusetts or Boston case, I infer been a number of years since I saw the which would be the origin of any accident. Washington and fire no matter what bind the washington and the washington are washed to be a second the washington and the washington curred in the territory occupied by water gas, would have been appreciably less works, and they are understand, are thrown out; that is, any

Mr. Barker-I think so. As you suggest about it. It seems to me to be based Mr. Taylor-I will ask you another have been for a sufficient length of time present investment to construct the works question. Did not the discovery of natural to have caused death by the use of coal to begin with.

Mr. Barker-Except where they are sul-

these hearings, in the first day's session, something on one of the earlier pages which seems to indicate that the people who are interested in having the carbon monoxide present had something to do

Mr. Barker—Yes.

Mr. Sims—I am asking you these question—over, taking gas that is now manufaction over, taking gas that for a moment, because we have before us bills to evaluate the people desirable. Prof. Ira Remsen, at that the people desirable over taking gas that is now manufaction over, taking gas that is now manufaction. Mr. Sims—I am asking you these question.

Mr. Salver—Yes.

Mr. Sa

and favored it, and that it was in 1838, have at that time as much competition, and part coal gas back to a Decause new interests bought out the old. coal gas exclusively?

Mr. Sims-You spoke of the water gas Mr. Barker-I think you would get very was the most poisonous. Of course, either duals, coke and tar, but if exclusively mainly the analyses. He did make those processarily, amined suicide with reference to which is governed by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the market for the resistance of the water gas broaded by the water gas br one would be poisonous in that case

Mr. Sims-In other words, you say that Mr. Barker-Except that it was inpresent as a reason—that they would 16 per cent practically excluded water cluded in the entire study; that is all. difficult to make a good market for the parts of this as have any particular by gas from being manufactured at all, We did not attempt to examine it, becoke, and that would ser the 10 per cent limit for carbon monoxide. cause it was suicidal. But, aside from net cost of the coal gas. Now, evidence has been put before this that, the experience usually is that the committee that water gas is five or six times more deadly or dangerous than to per cent when he is going to bed, and that it concerns meanwide.

have been chairman of that board since 1884. I am here at the disposal of the committee. I hardly know in what the committee may be most interested, and I will answer any questions that I may be able to which the committee may desire to ask.

I'will answer any questions that I may be able to which the committee may desire to ask.

Mr. Taylor—It is the custom of the committee to allow a witness to make any statement he may have to make any statement he may have to make with reference to the question, and it is the first print. There are errors in the hearings, no doubt, that would have been corrected as a not the first print. There are errors in the hearings, no doubt, that would have been corrected as a not hearing so that there was no change of the law, but there was a law passed making supervision over gas fittings and piping, and that law is now in force.

Mr. Barker—Of course, I did not know about that. In 1888 the question was again before the legislature, and in that tis cheaper and of higher illuminating power?

Mr. Barker—Of course, I did not know alout that. In 1888 the question was again before the legislature, and in that it is cheaper and of higher illuminating power?

Mr. Barker—Of course, I did not know alout that. In 1888 the question was again before the legislature, and in that the first print. There are errors in the hearings, no data was no change of the law, but there was a law passed making supervision over what?

Mr. Barker—Of course, I did not know alout that. In 1888 the question was again before the legislature, and in that tis cheaper and of higher illuminating of the law, but there was a law passed making supervision over what?

Mr. Barker—Of course, I did not know alout that I alw is now in force.

Mr. Taylor—Supervision over what?

Mr. Barker—Gas fittings and piping.

Mr. barker—Gas fittings and piping.

Mr. barker—Yes, slr.

Mr. Barker—Yes, slr.

Mr. Barker—Yes, slr.

Mr. Barker—Yes, slr.

Mr. Barker—Gas fittings and piping.

Mr. barker—Yes, slr.

Mr. barker—Yes, slr.

Mr. barker—Y

the legislature very prominently in connection with the agitation of this measure with respect to supervision of gas fittings as was so-called coal gas or water gas.

Mr. Sims—Dealing with the question of a similar throughout the legislature very prominently in connection with the agitation of this measure with respect to supervision of gas fittings was passed. That is the only agitation we have had, and that is the result of the legislature.

Mr. Sims—Ves.

Mr. Sims—Ves.

Mr. Sims—Ves.

Mr. Sims—Ves.

Mr. Sims—Ves.

Mr. Sims—In other words, the practical exposures.

Mr. Sims—In other words, the practical exposures.

Mr. Sims—Ves.

Mr. Sims—Ves.

Mr. Barker—Ves.

Mr. Barker—No; they could probably

from the misuse of it.

Mr. McIlhenny—Do you notice the posure, both from coal gas and from deaths from electric lights, too?

Mr. McPorlow Williams and the posure, both from coal gas and from mixed gas, than we have fatallities. Mr. McIlhenny—Do you notice the poster, was a natural object.

deaths from electric lights, too?

Mr. Barker—We do, yes; all fatalities and all accidents, where personal injury and all accidents, where personal injury that the gas compared to the poster.

Water gas was not adopted here from of New York.

Mr. Taylor—You may state, Mr. Love, just how you came before the committee oil to such an extent that the gas compared to the poster from of New York.

Mr. Taylor—You may state, Mr. Love, just how you came before the committee oil to such an extent that the gas compared to the poster from of New York.

Mr. Barker-I can understand that. Mr. Sims-Then they would have no in-

Mr. Barker—I have finished the topic, rect in that satement.

Yes, sir.

Mr. Barker—That is right.

Mr. Sims—I would like to ask you this, as you are an expert witness and can speak with knowledge. Which would you speak with knowledge with a satisfactory gas of a high new departure in the transfer.

Mr. Barker—I can understand very well the necessity for the use of water gas to obtain a high and satisfactory candle power, a satisfactory gas of a high new departure in the manufacture of the water gas plant established in this country was in 1854, at people, by accident or otherwise, to two obtain a high and satisfactory candle power, a satisfactory gas of a high new departure in the manufacture of the water gas plant established in this country was in 1854, at feetly honest, I have not the satisfactory was undertaken and performed in a per-the first water gas plant established in this country was in 1854, at feetly honest, I have not the satisfactory and the necessity for the use of water gas to obtain a high and satisfactory candle power.

I have not the satisfactory was undertaken and performed in a per-the was done with the necessity for the use of water gas to obtain a high and satisfactory gas of a high property was in the country was in 1854, at the necessity for the use of water gas to obtain a high and satisfactory gas of a high property was in the country was in the country was in 1854, at the count

be obtained with coal gas? same price, if you had to decide which you would adopt under like conditions?

I mean, it is no difference to the consumer and no difference as in candle sumer and no difference as in candle of them, have been investigated and sumer and no difference as in candle of them, have been investigated and sumer and no difference as in candle of them, have been investigated and sumer and no difference as in candle obtained with coal gas.

York took up the process and commenced to supply what is commonly known as plant to supply what is

Mr. Barker—No sir, of the Gas and factory gas. It never has been to my think, can be safely said to be the great- jected to coal gas because he was afraid

than retard it. Mr. Sims-Relatively what difference of Mr. Barker-I presume the gas was gases are carbonic oxide and hydrogen, this:

Mr. Sims-Yes, it might be ignored en-

Mr. Taylor-You refer to heating in an exclusively coal gas? You admit that as a general proposition?

Mr. Barker—I refer to neating nouses. Illuminating rooms is a regular method. Il suspect that where gas is used for heating rooms it is only intermittently used. ing rooms it is only intermittently used,

occasionally. Mr. Sims-I have heard people say here that to cook exclusively with gas costs them less than the coal. Mr. Barker-That demands a low-priced

Mr. Barker-Yes, sir.

Mr. Sims-But no further; I mean, the with water and re-enforce it with oil The one thing. I think, which appeals to sufficient to make a 22-candle power gas?

Mr. Barker-Qh, yes; the fact is that supplying this carburetted water gas,

carburetted water gas. Mr. Sims-In using carburetted water So far as the explosiveness in these cases

Mr. Sims-Your investigations that you

of your conclusions in the matter?

Mr. Barker-Yes, and the candle power those of another? Of course, really it is account, considering that gas is used much about them now, and do not assume thing of a suicidal intent would hardly to-but if they are making a mixed gas count. The making up of lists of acci-Mr. Sims-Yes, I catch your statement of the percentages that have been stated dents from newspaper clippings and numerous processes which have been inhere, I should expect that if they were things of that sort has been a very pop- dicated for its production have been it. I never had it occur to me in that upon the idea that the exposures usually, required to make a coal gas, it would reway of getting at it, and it is very abandoned, or have received only a reway before. I think perhaps that is true.

Taylor I will ask the exposures usually, quire a very substantial addition to their difficult, particularly a day or two or a

be somewhat greater.

Mr. Sims-In other words, they could He had been applied to by the common

Mr. Barker-I should expect not.

low.

Mr. Sims—But as between economy and safety, life and health, you would advise us to take the side of life and to the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the use of the limit of the relative danger attending the limit of the limit of the relative danger attending the limit of the limit

been able to find.

appearing? Mr. Barker-I supposed-

witness in any respect.

Mr. Taylor—He stated exactly how he came, and I do not think you need discuss it any further. It is in the record that he stated exactly the manner in I de not consider the use of water gas than in that of coal gas, but it is highly improbable that, in either case, there would be a leak in the pipes sufficiently bad to lead to serious results without attracting attention during the waking hours.

My opinion may be briefly stated thus:

I do not consider the use of water gas at all.

Gas Commissioner for City of New York.

Mr. Love-I am a chemist by profes- Brooklyn, dated 1863. sion, and for something over thirty years ave been gas commissioner for the city

Mr. Murphy-Do you mean it cannot Municipal Gaslight Company of New ness.

odorless, and the next step would be to sions of the petitioners that this gas is give that its illuminating properties. This in any way more dangerous than the gas

the carburetted gas has an odor just as cerned they both stand on the same basis. There are certain advantages that the water gas has over the coal gas, and it the consumers in New York when the power gas from the Municipal company other companies engaged at that time into a room, or the escape of carburetted Mr. Barker-I think not. I cannot see water gas into a room, mixed with the necessary quantity of air to make an Mr. Sims-Your investigations that you explosive mixture, would not be material-have previously referred to are the basis by different, but so far as the heating power is concerned, there is considerable Mr. Barker-Yes, sir.

Mr. Taylor-Several gentlemen from out of the city, Mr. Sims, are here to be of the cit heard.

Mr. Sims-Well, I thought that if we candle power will give from 700 to 750 heat

my opinion as to the adaptability of water gas for lighting and heating purcould get the information out now, we units, so there is a material gain in the

Mr. Sims-Then, would the current ex- exact conditions were.

not furnish gas to the consumer as cheap council of Brooklyn for an opinion and realized an important progress as they can if the present method is report on this matter of carbonic oxide of course it is possible. I suppont continued?

Of course it is possible. I suppont in illuminating gas, and he furnished have an almost endess multiple in illuminating gas, and he furnished to continue the state of course or the state of course it is the state of course or the state of course it is the state of course or the state of course it is the state of course or the state of course it is the state of course or the state of course it is supported by the state of course or the state or the state of course or the state or the state of course or the state or the stat Hopkins University, and who has since Washington Mr. Barker-One of the serious prob- become the president of that institution,

this size I should expect it would be very I can read, with your permission, such coke, and that would seriously affect the ing on this matter; but first, after readmet cost of the coal gas.

Mr. Sims-And the retail price to the in manuscript by Dr. Remsen, Dr. Rayonsumer is affected to that extent? mond suggested "What do you think of it," and here in his reply is what he says:

two kinds of gases. Mr. Barker-Yes, sir, if it can be clearly He was their own expert who had been shown that it exists, which we have not making these investigations or analyses for the Brooklyn board of health. He Mr. Sims-Did the chairman of the com- went over the evidence, and that is the nittee request your presence, or how are conclusion he came to. In the letter earing? That has no effect on your which accompanies the analyses which he made for the Brooklyn beard of health he says:

ture?
that differopositions as to gas, to the national as to the national as to make the national associational associational as to make the national associational associationa

which he came,

I do not consider the use of water gas at all dangerous if it be used with the same precautions as are observed in the use of ordinary coal gas.

Yours respectfully,

IRA REMSEN. That is taken from the report of the

commissioner of health of the City of Mr. Sims-Twenty-six years ago.

Mr. Love-Yes, sir. I will say that this report was a natural outgrowth of the Mr. Love—The invitation of the Wash-ngton Gaslight Company. That was the starting point. There was conington Gaslight Company. was the starting point. There was con-Mr. Taylor—As I stated before, it is our siderable opposition, of course, to the ment. You may proceed.

Mr. Love—The first water gas plant eswas undertaken and performed in a perfectly basest conscientious manner, but illuminating gas. Two years later the it interfered with another man's busi-

York took up the process and commenced Mr. Sims-The contest between two com-any kind of accidents, which character of gas would you recommend for adop-board of health of Massachusetts?

Mr. Sims-Are you a member of the made in the coal gas works, in an exclusively coal gas works, in an exclusively coal gas works, as a satisfact of the made in the coal gas works, as a satisfact of gas. The introduction of this Davey, who lived at that time, and who clusively coal gas works, as a satisfact of gas. Mr. Sims—Which is a better gas to use for heating purposes, water or exclusively coal gas?

est. advance in the manufacture of illuminating gas in the last century. Noth-lif we had stopped right there there would ing has had a greater influence on the have been no coal gas, to say nothing Mr. Barker-Well, strictly speaking, I subject of artificial illumination.

The term "water gas" has been used developed along that line. Prof. Chandto me to propose a practical or possible condition.

Mr. Sims—I want you to answer it exactly as it appears to you, of course.

Mr. Barker—No, sir, I hope I make my understanding of it clear, and that is, that in the investigation of a great number of these fatal cases, the exposure indifferent about it.

Mr. Sims—Take it as a hypothetical question, that in Washington the manufacture of water gas is equally expensive to the company. Supposing that the gas company is not affected financially and the consumer is not affected financially.

Mr. Barker—Well, strictly speaking, I think that theoretically speaking, I think that theoretical andescent carbon. This breaks up the tention of the board of aldermen. They steam, the carbon taking the ogygen of referred the matter to the board of the water, or of the steam, freeing car- health, of which Prof. Chandler was then

This flame "There burns with a bine color, it is practically substantial foundation for the apprehen-

That was the conclusion he came to, on in different ways under different and that, so far as the board of health Mr. Barker-Yes, but it is really a small patents. The latest forms of apparatus of New York was concerned, was the end do it all in one operation, that is, this mixed blue gas is carburetted in one dent of the Stevens Institute of Techoperation, so that the gas passing from nology, at Hoboken, was a man very he plant is the finished illuminating gas.

Mr. Sims—"Carburetted" means putting physics—and a man who did a great deal Mr. Love-Yes. That is, it is gas that the question first came up President Morhas been carburetted, or given its illu- ton was rather inclined to be on the other minating property, and in that condition side-that is, I mean, on the side looking bungent as ordinary coal gas, so that rious; that is, water gas should not be so far as that particular property is con- allowed. He wrote in the Sanitary Engi-

neer of the 15th of January, 1880, as fol-Mr. Sims-We are coming right to the has been claimed that the coal gas has the subject first came to my notice my impression was that water gas was so practically dangerous (on account of the large amount of carbonic oxide in it) Mr. Barker—Oh, yes.

Mr. Sims—To raise it to the 22 candle power, will you make any cheaper gas than you would to make coal gas of a bright, clean, white flame.

Mr. Barker—Oh, yes.

Mr. Sims—To raise it to the 22 candle tributed was the fact that it had a bright, clean, white flame.

Moreover, than you would to make coal gas of a bright, clean, white flame.

Moreover, they were getting from 25 to 30-candle be a question of economy and efficiency. be a question of economy and efficiency become the gas of the future."

I have here a copy of the hearing before the committee on manufactures of the Massachusetts legislature. The petitioners in that case, as stated by Dr. Barker already, asked for the repeal of a law practically fixing the maximum of carbonic exide in the gas distributed in the State of Massachusetts to 10 per cent. This is the report of that hearing, and I quote from page 178 a letter from Dr. Edward Franklin, professor of chemistry of the Royal College of Chemistry in Lo

poses, I have no hesitation in saving that

but I always advise other people to do it. oxide, and coal gas is not exempt from

"Further, the use of water gas has never production here have, up to the present

Mr. Barker—Yes.

Mr. Sims—But there is no general rule of govern that, is there? Is not that all in the penses of manufacturing gas after the works had been charged, be greater also? In manufacturing, under good conditions, a gas remarkable on account of its interpretations. The penses of manufacturing gas after the works had been charged, be greater also? In manufacturing, under good conditions, a gas remarkable on account of its interpretations. illuminating power, and of a sufficient smell to reveal its presence, you have

Of course it is possible, I suppose, to of opinions like this. I have quoted from quite an elaborate report of something of opinions the world over as very

> The committee have had suggested to Garlight . Company out its water gas plant altogether, you

coal gas were to be made in a city of analyses and reported to Dr. Raymond. | Continued on Page 12, Column &